



## ENGINEERING OPEN HOUSE

MARCH 13-14, 1964



UNIVERSITY OF ILLINOIS--URBANA

## CURRICULUM INFORMATION CENTER

TO BECOME ACQUAINTED WITH ADMISSIONS AND COURSE REQUIREMENTS, VISITORS ARE URGED TO VISIT THE NEW CURRICULUM INFORMATION CENTER ON THE FIRST FLOOR OF CIVIL ENGINEERING HALL. FACULTY MEMBERS FROM EACH CURRICULUM WILL BE THERE TO ANSWER QUESTIONS ABOUT THEIR PARTICULAR FIELDS OF ENGINEERING. ALSO PRESENT WILL BE REPRESENTATIVES FROM THE OFFICE OF ADMISSIONS AND RECORDS AND FROM THE R.O.T.C. UNITS. IN ADDITION, PERSONNEL FROM THE OFFICE OF CAMPUS TOURS WILL HELP VISITORS TO PLAN TRIPS AROUND THE ENTIRE CAMPUS.

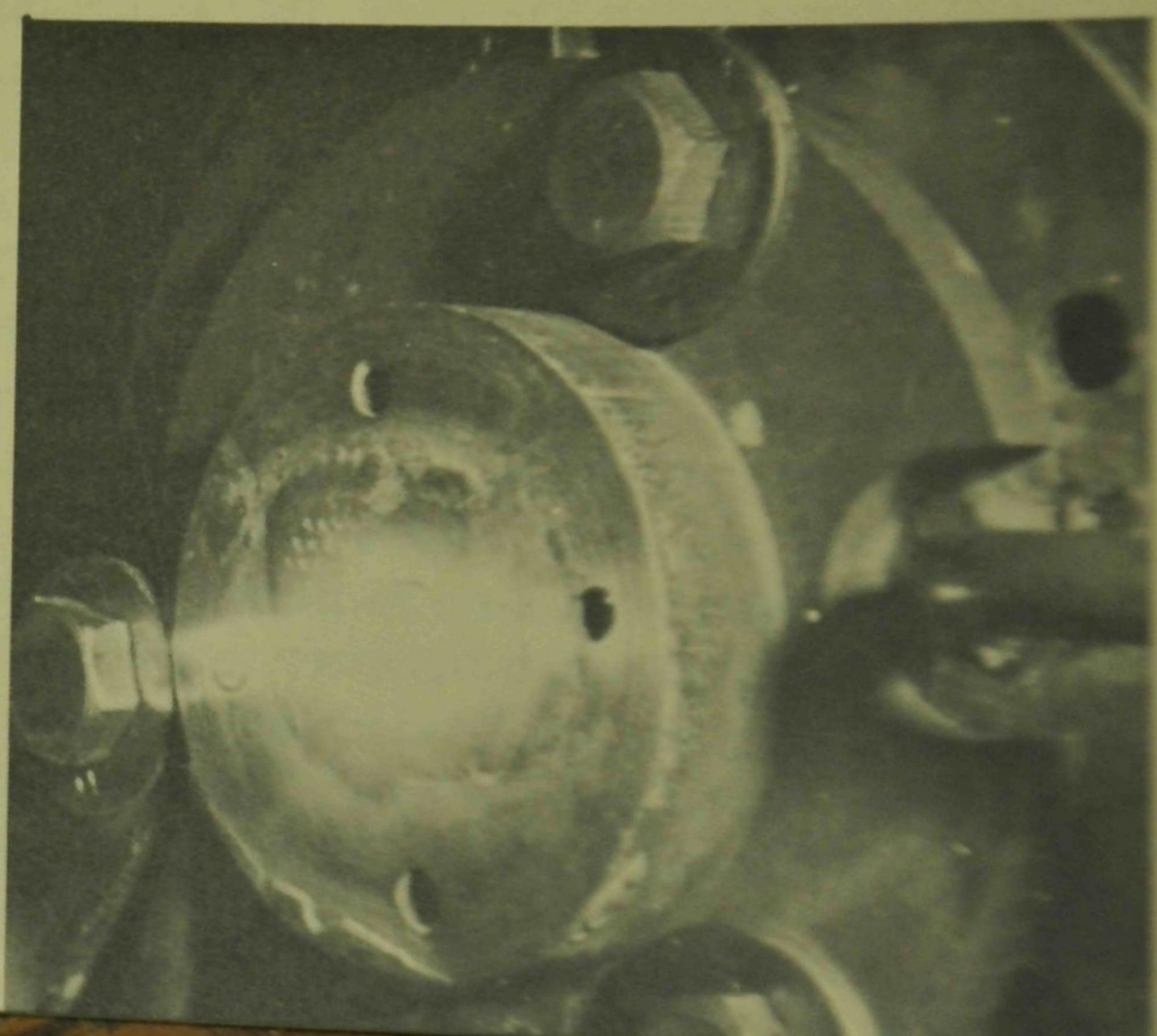
CURRICULUM GUIDANCE CONFERENCES FOR HIGH SCHOOL MATHEMATICS AND SCIENCE TEACHERS WILL BE HELD IN ROOM 141, ELECTRICAL ENGINEERING BUILDING THURSDAY. THE TIMES ARE AS FOLLOWS: FRIDAY, 1:00-2:00 P.M. AND 3:00-4:00 P.M.; SATURDAY, 11:00-12:00 NOON AND 2:00-3:00 P.M. REPRESENTATIVES FROM THE OFFICE OF THE ASSISTANT DEAN OF ENGINEERING AND FROM THE ADMISSIONS AND RECORDS OFFICE WILL SPEAK ON CURRENT AND FUTURE PROGRAMS AND ADMISSION REQUIREMENTS IN ENGINEERING AT THE UNIVERSITY OF ILLINOIS.

## AERONAUTICAL AND ASTRONAUTICAL ENGINEERING

In the Department of Aeronautical and Astronautical engineering research is conducted in ever-increasing volume on the design and performance of air-borne vehicles ranging from ground effect machines, which hover inches above land or water, to space vehicles which travel thousands of miles per hour.

Students in this field of engineering gain knowledge of aerodynamics, ballistics, propulsion, structures, and other related areas. The basic disciplines of mathematics and physics are also emphasized so that students will be able to solve the more complex problems which arise as vehicle performance improves.

THIS THERMAL ELECTRIC RACHET MOTOR PRODUCES A PLASMA OF IONIZED PARTICLES AT TEMPERATURES UP TO 30,000° F



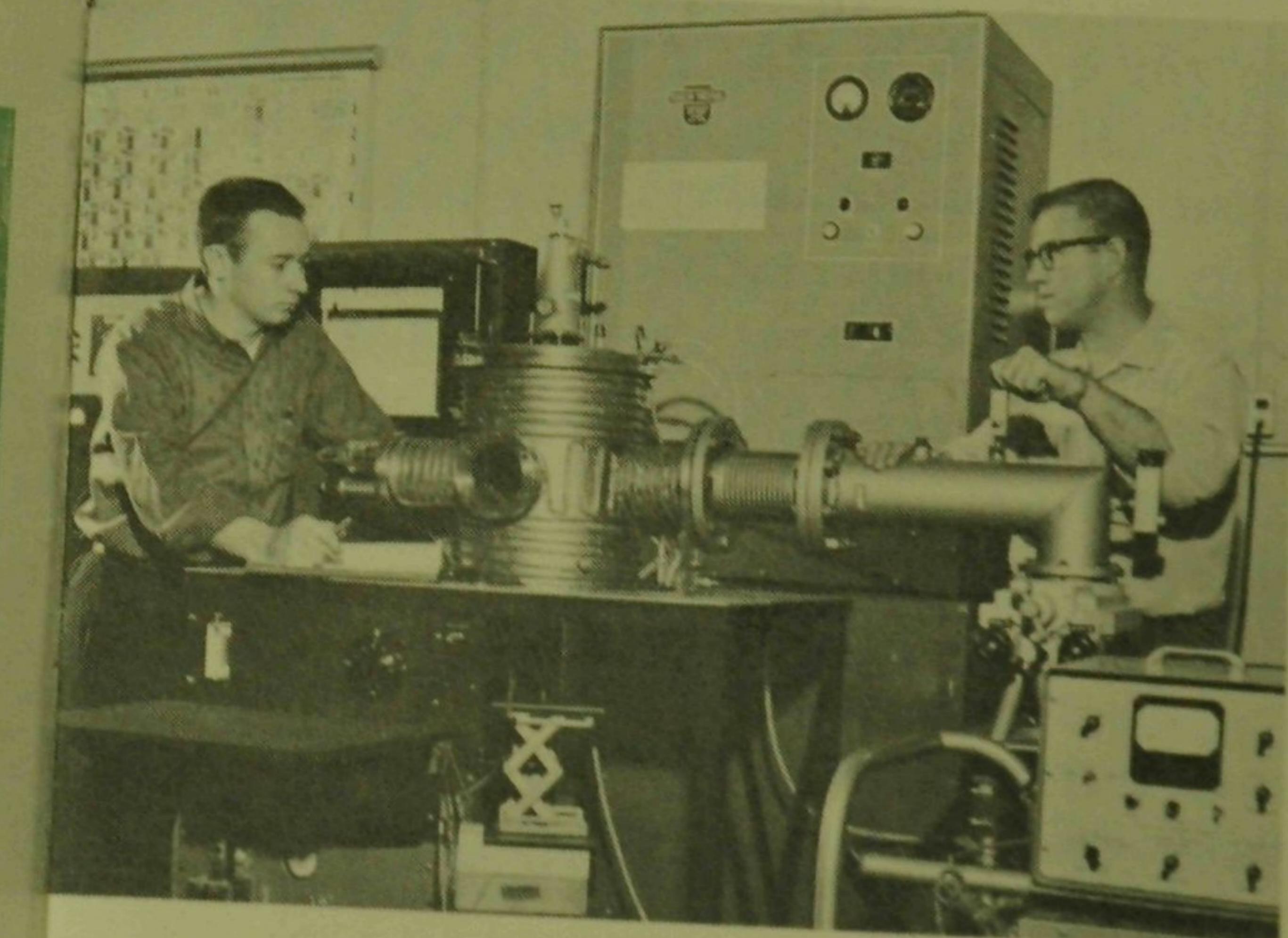
## AGRICULTURAL ENGINEERING

Responsibility for supplying food and fiber to a rapidly expanding world population will fall even more heavily on the engineer in the future than it has in the past. Students in the Agricultural Engineering Department are exhibiting recent engineering contributions to the agricultural industry. These include an automated pneumatic feed conveyor, a model of a slotted floor confinement barn, a high-pressure anhydrous ammonia fertilizer injector, and a pictorial review of water-shed engineering.

AUTOMATIC FEED GRINDER WITH PNEUMATIC CONVEYANCE



AN INDUCTION-HEATED CELL USED FOR STUDIES OF AEROSPACE MATERIALS AT HIGH TEMPERATURES



## CERAMIC ENGINEERING

Ceramic Engineering is both the oldest and the newest of the engineering sciences. Though it began with the discovery that fired clay could be used to make durable and useful containers, it has so expanded that it now leads the way to the world of tomorrow with such advanced products as nuclear fuels and nose cones for space vehicles.

Just what are ceramic materials, and what is ceramic engineering? Ceramic materials are those inorganic, non-metallic materials which are subjected to elevated temperatures, either during processing or application. Ceramic engineering is simply the scientific adaption and processing of these materials to serve a practical purpose. The exhibits in the Department of Ceramic Engineering illustrate the many applications and uses of ceramic materials.

## CIVIL ENGINEERING

Civil Engineering is the oldest of engineering branches, yet it is one of the most modern and exciting. The technical advances created by Civil Engineering greatly benefit modern man and his society. It is this close relationship between society and the practice of Civil Engineering that makes this profession so challenging.

These Open House exhibits attempt to show some of the work being done by college students and civil engineers. Students running the display encourage questions so that visitors may obtain more information about the following phases of Civil Engineering:

CONSTRUCTION (THE REALIZATION OF IDEAS)

HIGHWAY ENGINEERING (THE DESIGN, CONSTRUCTION, AND MAINTENANCE OF HIGHWAYS)

HYDRAULICS AND HYDROLOGY (THE STUDY OF WATER RESOURCES AND HYDRAULIC STRUCTURES)

RAILWAYS

SANITARY ENGINEERING (PROBLEMS OF WATER SUPPLY AND WASTE DISPOSAL)  
SOIL MECHANICS (THE STUDY OF SOIL BEHAVIOR)  
STRUCTURAL ENGINEERING  
SURVEYING  
TRAFFIC  
RESEARCH (THE SOURCE OF MOST NEW ENGINEERING DEVELOPMENTS)

## CHEMICAL ENGINEERING

Research in the Department of Chemical Engineering covers a wide area in the scientific field.

Current research includes:

SOLID STATE PHYSICS  
HEAT TRANSFER  
MASS TRANSFER  
FLUID MECHANICS  
KINETICS  
CATALYSIS  
HIGH PRESSURE STUDIES  
NUCLEATION PHENOMENA  
PROCESS DYNAMICS  
REACTOR DESIGN  
RHEOLOGY  
CRYSTALLIZATION KINETICS OF POLYMERS

## ELECTRICAL ENGINEERING

Electrical Engineering, one of the youngest of the engineering disciplines, is fundamentally based on the science of electricity, a branch of physics.

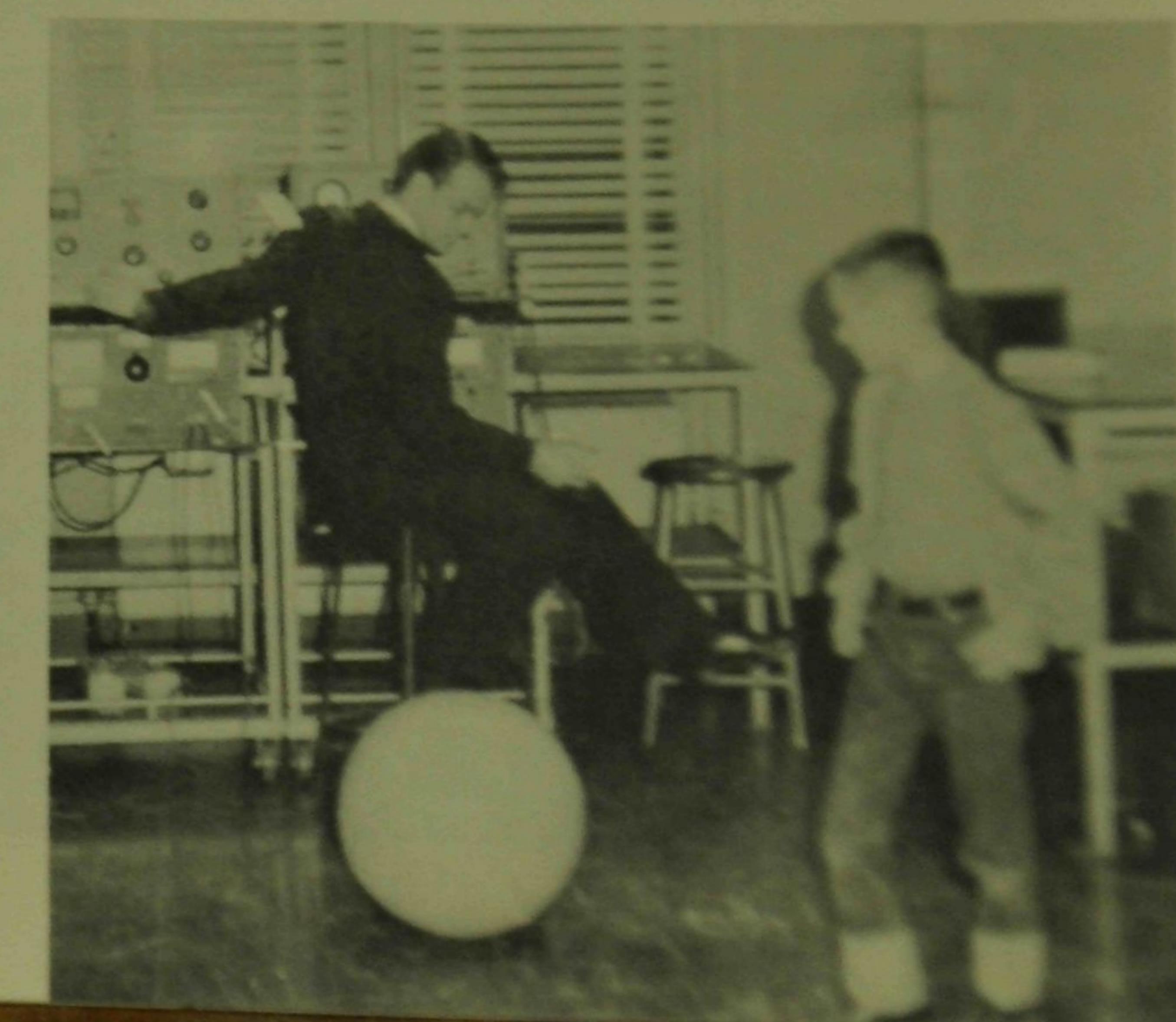
In the past, EE was conveniently divided into two main categories, power and communications; however, this division is becoming increasingly more difficult to adhere to. Today EE is so large and diversified that it encompasses many areas, from the medical profession to the business community.

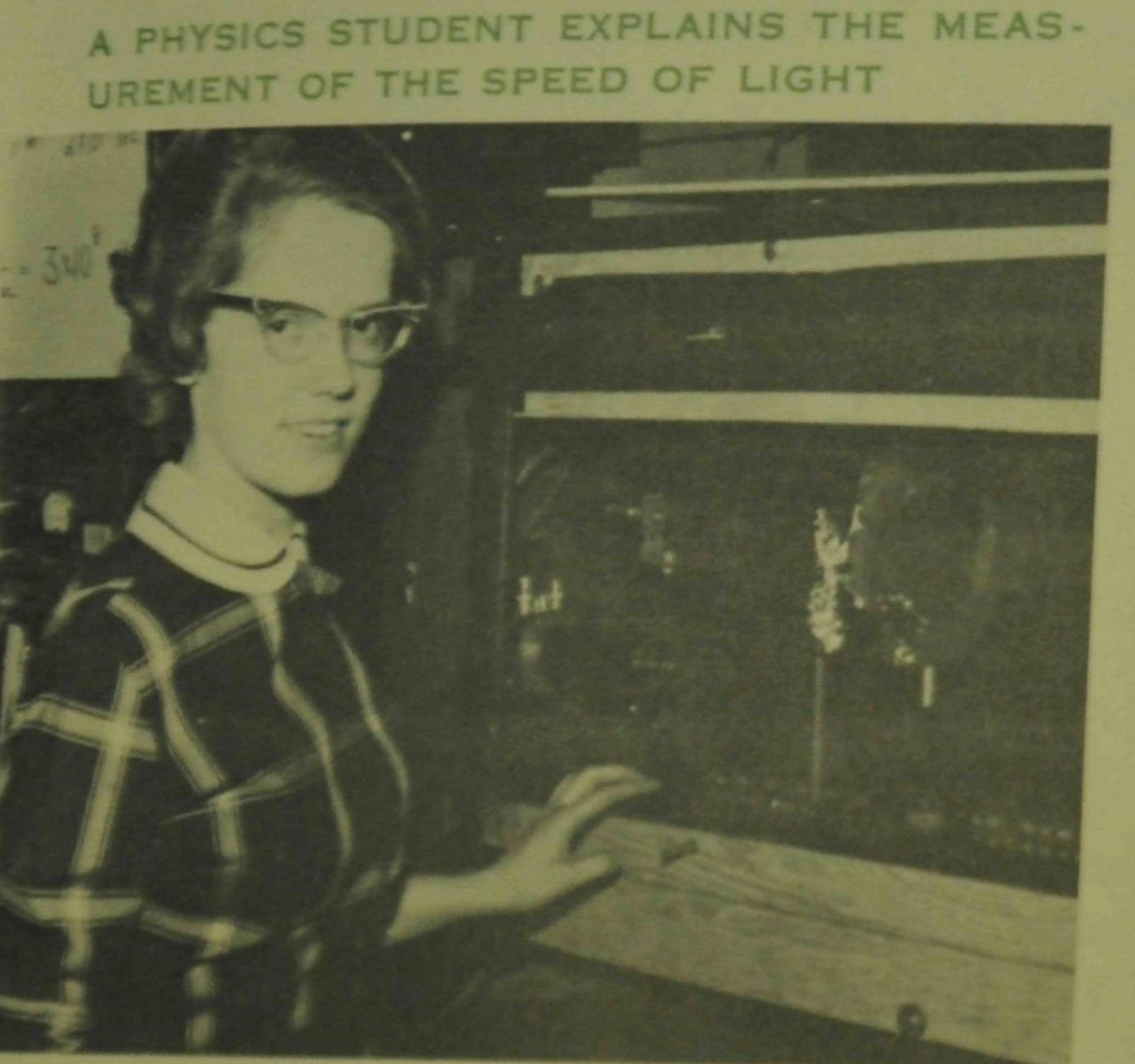
Various fields of study are demonstrated in the exhibits. An example of work in the communications field is the Radio Controlled Ball. Other fields represented are electronics, exemplified by the laser; Statics, evidenced by the water drop generator; electrical current properties, demonstrated in the magnetic cannon; and electrical energy conversion, indicated by the strength tester.

## DIGITAL COMPUTER LABORATORY

The D. C. L. will run exhibits in two locations. In the Coordinated Science Laboratory the IBM 7094 and 1401 will be in operation. Illiac II will be demonstrated in the Digital Computer Laboratory.

RADIO-CONTROLLED BALL





A PHYSICS STUDENT EXPLAINS THE MEASUREMENT OF THE SPEED OF LIGHT

### ENGINEERING PHYSICS

Physics is a quantitative science based on experimental measurements. Generalization of observations, or theories, must agree numerically with measured values wherever a prediction can be made. In room 141 of the Physics Building, students will perform experiments to verify physical laws. These demonstrations include:

RELATIVITY — THE EQUIVALENCE OF MASS AND ENERGY  
RADIOACTIVE DECAY  
COSMIC RAYS  
OPTICAL PHENOMENA  
LIQUID AIR

Guided tours of the senior-year laboratory in Modern Experimental Physics will be conducted. A spark chamber is on display and a booth is set up to offer information regarding careers in physics.

### GENERAL ENGINEERING

General engineering at the University of Illinois provides a comprehensive program in the basic sciences, in the engineering sciences, and in the study of project design methods. The education of the general engineer is broader in scope and more diversified in subject matter than specialized engineering curricula usually allow.

Students in general engineering take the usual basic science courses — chemistry, physics, and mathematics — and then get a thorough grounding in the engineering sciences, including mechanics, thermodynamics and electronics. Finally, five design courses provide a solid background in analysis and synthesis as applied to the solution of practical design problems.

Graduates of general engineering fill positions ranging from those of administrators to project designers. Graduates also find positions as supervisors, and group leaders in research or production. They also serve as engineering salesmen, technical service representatives, directors of publications or public relations units, and in other posts requiring both technical knowledge and ability to deal effectively with ideas in relation to people.

## MECHANICAL AND INDUSTRIAL ENGINEERING

Mechanical Engineering exhibits demonstrate the theory and practice of the generation, transmission, and use of power, the design of machine elements, and the basic metal working processes. Steam turbines, compressors, refrigeration units, and "The Vanishing Liquid" are shown at the Power Lab. The Foundry features iron-pouring on Friday at 7:30 p.m. and casts aluminum souvenirs. Exhibits in the M.E. Building itself include; engine testing, computer operation, a dynamic testing machine, machine tools, heat treatment, and friction welding.

The function of Industrial Engineering, which is the integration of men and machines into an optimum system, is demonstrated by students in the department. An IBM computer (rm. 143 M.E.B.) solves I.E. problems, such as line balancing, linear programming, etc. Safety, work measurement, quality control, tool engineering, workplace design, and facility analysis are illustrated in Room 135, Mechanical Engineering Building.

## METALLURGICAL ENGINEERING

Metallurgy, the study of metals, is founded on a combination of the chemistry and physics of metals. The metallurgist is concerned with the production of metals and the reasons for their behavior. The field of knowledge which most emphatically separates metallurgy from other branches of engineering is the science of relating metal structure to metal properties. What makes a metal strong, tough, soft, or elastic? Why is copper a good electrical conductor and titanium a poor conductor? How does heat treating make a steel stronger? Why does stainless steel resist corrosion so well?

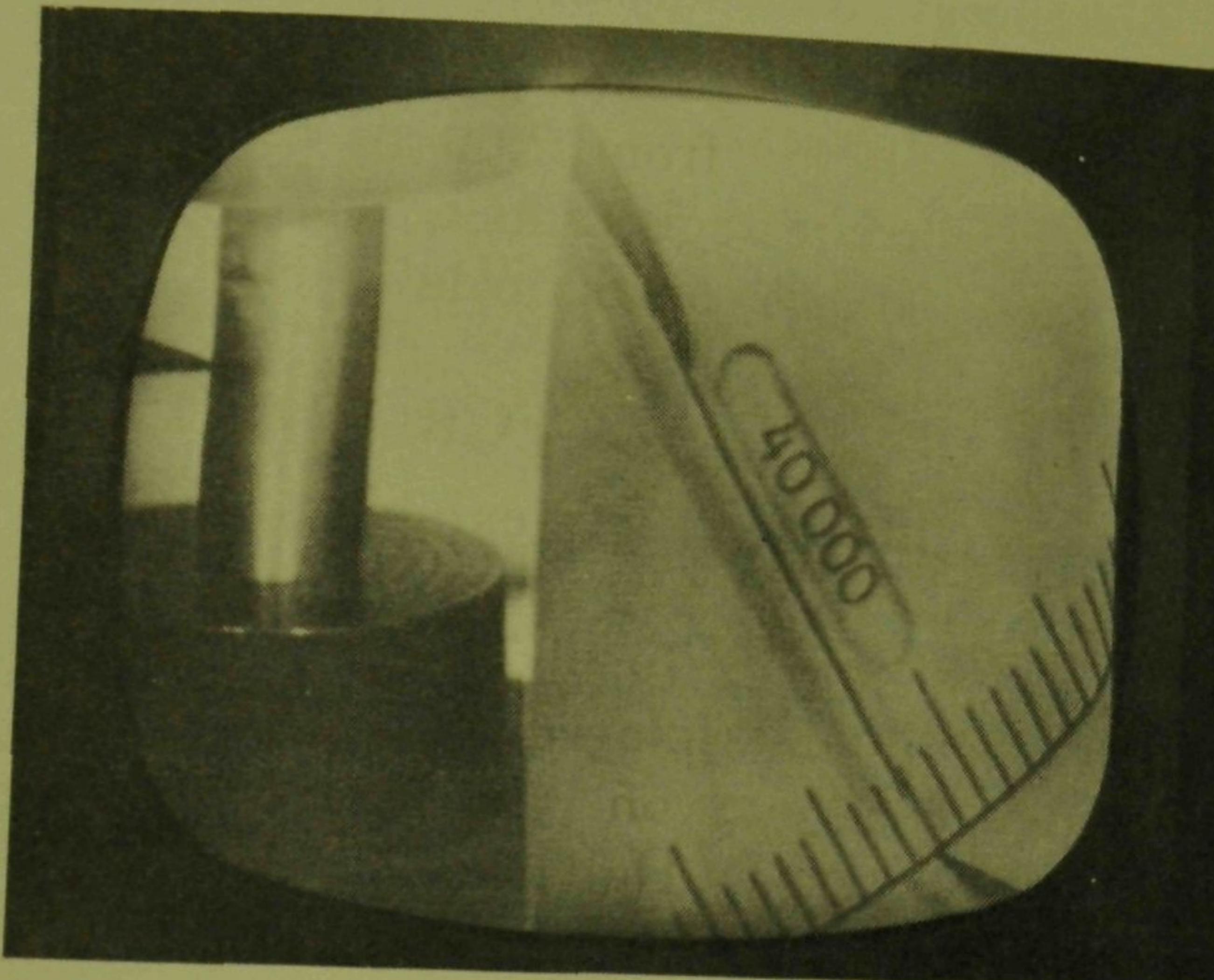


To answer these and many other questions, the physical metallurgist employs specialized modern equipment—optical microscopes, electron microscopes, x-ray machines, etc. Using these instruments, he can "look" inside metals to "see" what is happening. This profound interest in metal structure naturally leads the metallurgist into modern physics and into the rapidly growing field of solid state physics. Metallurgy is, therefore, an attractive field for anyone interested in chemistry and physics and eager to acquire a better understanding of metallic behavior.

## THEORETICAL AND APPLIED MECHANICS

The Open House exhibit of the Theoretical and Applied Mechanics Department demonstrates the models, natural phenomena, and testing equipment used to teach the basic engineering sciences of solid mechanics, fluid mechanics, and natural properties. Many of the displays also indicate the research currently being done, and that previously done, in the department. As in the past, the displays are divided into these five major areas: fluid mechanics, materials testing, vibrations, experimental stress analysis, and concrete research. A general information center for displays of the Engineering Mechanics Curriculum is located in the student-staff lounge on the second floor of Talbot Laboratory.

TV CLOSE-UP OF ALUMINUM SPECIMEN IN COMPRESSION



## JETS

The annual JETS (Junior Engineering Technical Society) Exposition and Conference is being held on the first-floor of the New Physics Building. Exhibits are open to the public from 10:00 a.m. to 10:00 p.m. Friday and from 9:00 a.m. to 3:00 p.m. Saturday. Technical papers will be presented Saturday from 9:00 to 12:00 noon in Room 151 of the New Physics Building.

Exhibits will be judged on Friday afternoon March 13, from 2:00 to 5:00 p.m. Judging for late registrants will occur from 8:00 to 9:00 a.m. on Saturday.

## AIR FORCE R.O.T.C.

The Arnold Air Society exhibit is in room 50M, Electrical Engineering Building. Models of the X-15, J-79 Turbojet, and others will be displayed. Sky divers will jump at 2:00 p.m. on Friday and Saturday with the Assembly Hall parking lot as their target.

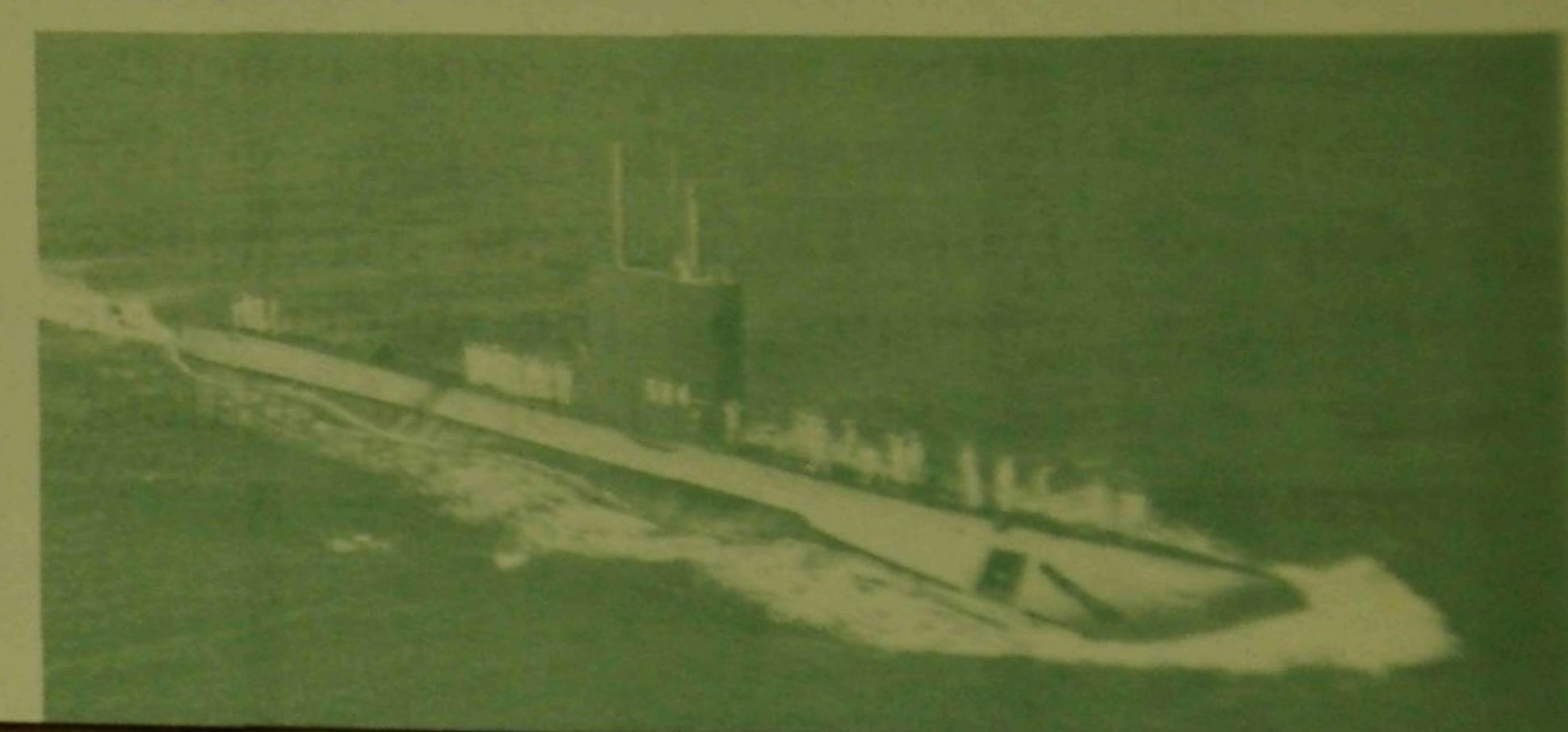
## ARMY R.O.T.C.

The Army R.O.T.C. Corps of Engineers will exhibit in rooms 235 and 242 of the M.E. Building. They will have on display examples of modern Army technology such as crew-served weapons, new small arms, mine detectors, etc. On display in the parking lot will be a mobile Nuclear Reactor and a water purification set.

## NAVY R.O.T.C.

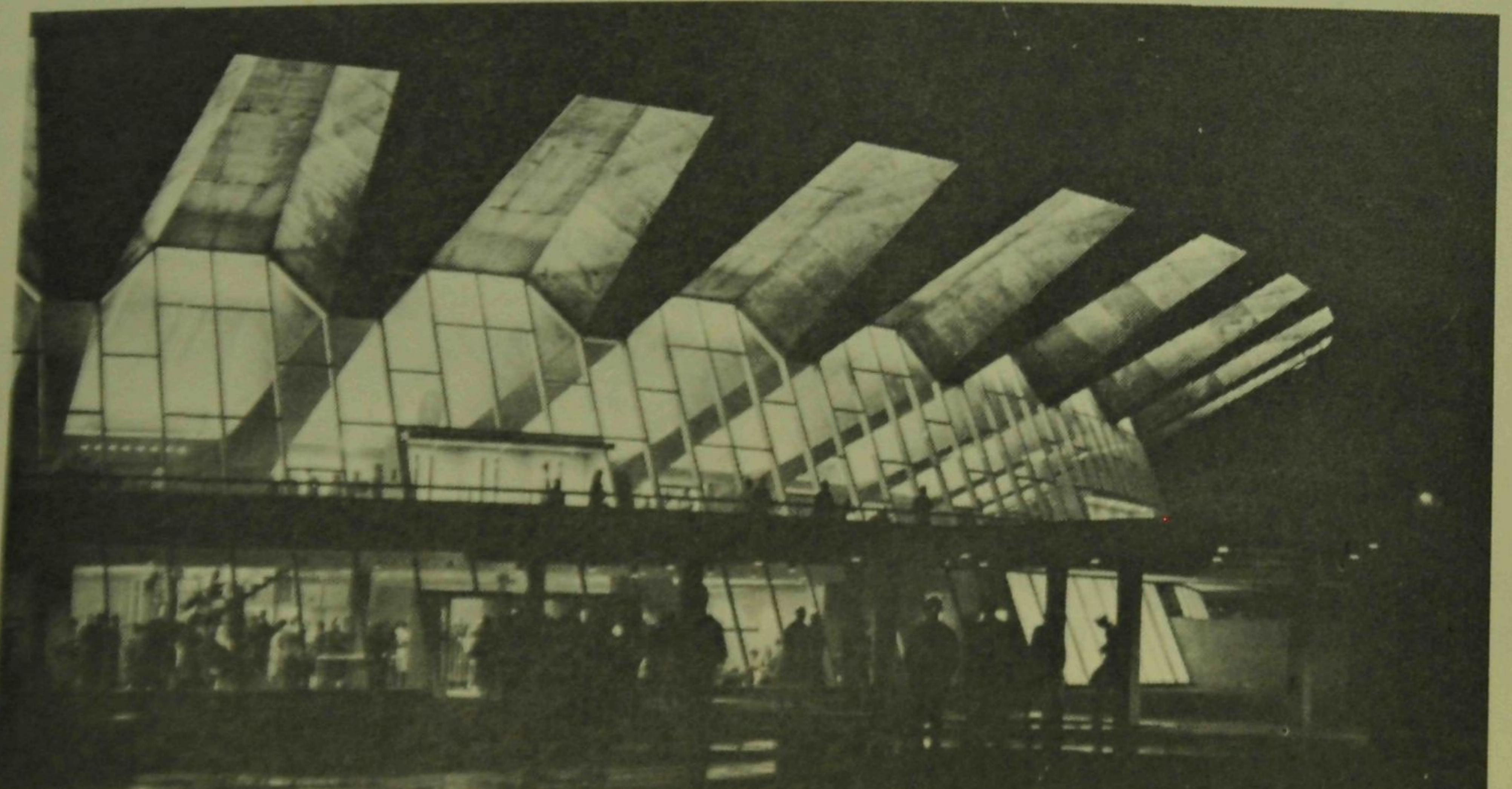
The Navy R.O.T.C. exhibit, located on the second floor of the Mechanical Engineering Building, features a model of the Polaris submarine and the first showing of a new color motion picture on gemini spacecraft operations.

USS SEADRAGON (SSN-584), ARRIVING AT PEARL HARBOR



### **ASSEMBLY HALL**

The University of Illinois Assembly Hall will be open during Open House to guests who would like to inspect its spacious interior. Pershing Rifles, national military society, is holding a drill meet on this weekend and all Open House visitors are welcome. The Assembly Hall is located on the extreme south end of the campus near the Stadium.



### **ENGINEERING OPEN HOUSE EXHIBITS**

AIR GLASS DISTILLATION UNIT  
CHEM-POP (CARBONATION OF LIQUIDS)  
AMMONIA ABSORPTION COLUMN  
RADIOCHEMISTRY EXHIBIT  
ROTARY FILLER PRESS — CONTINUOUS  
FILTRATION OF LIQUIDS  
CHEMICAL MAGIC SHOW (EVERY HOUR)  
CHEMICAL ENGINEERING RESEARCH LABORATORY  
DUPONT AUTOQUIZ  
SCALE MODEL OF PROCTER AND GAMBLE HYDROGENATION PLANT

